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ABSTRACT

Reading and writing are commonly seen as parallel processes of composing meaning, employing similar cognitive and linguistic strategies. Research has begun to examine ways in which knowledge of content and strategies contribute to the construction of meaning in reading and writing. The metaphor of mining can provide a useful and descriptive means for understanding how writers read purposefully to develop discourse knowledge they can use to accomplish composing goals. Pragmatic reading, like mining, is fueled by three strategies that can inform it: (1) reconstruction situation or context; (2) inferring or imposing structure; and (3) identifying choices in language. Constructivist theories of reading, which view comprehension as an active process of composing meaning, can provide a framework for understanding how a sense of authorship can motivate and influence reading. Examples from think-aloud protocols collected from students as they read an argumentative essay with a view to writing one themselves, illustrate how students used the three key strategies, and show how, in mining texts, students conduct an inquiry that informs them about the texts they have read and the ones they can produce. Mining texts is an ongoing process of reading, analyzing, and authoring that recognizes the social nature of discourse. Students gain critical knowledge about the appropriate uses of certain strategies in different situations. If students are to read in the role of writers, teachers must give them opportunities to write. (Sixty references are attached.) (SG)

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CENTER FOR THE STUDY OF WRITING

Occasional Paper No. 29

MINING TEXTS IN READING TO WRITE

Stuart Greene

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MINING TEXTS IN READING TO WRITE

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It has become almost commonplace to conceive of reading and writing as parallel processes of composing meaning, each drawing from a common pool of cognitive and linguistic strategies (Kucer, 1985). Petrosky (1982) observes that, "When we read, we comprehend by putting together impressions of the text with our personal, cultural, and contextual models of reality. When we write, we compose by making meaning from available information, our personal knowledge, and the cultural and contextual frames we happen to find ourselves in" (p. 34). Others have pointed to the ways in which reading and writing inform one another, suggesting that writers balance their purpose and goals with the expectations they believe their readers bring to a text (Nystrand, 1986) and that the relationship between readers and writers can be construed as a "contract." Such a contract defines the role of readers and writers in relation to the text, establishing an interaction which provides the basis for a "reasonable" interpretation of textual meaning (Tierney & LaZansky, 1980). Finally, in their review of reading-writing relationships, Tierney and Shanahan (1991) consider the role of authorship in reading, raising a critical question that is the focus of my own concerns: what happens when readers are writers? They argue that "successful writers not only consider the transactions their readers are likely to be engaged in, but they are their own readers" (p. 265). However, they also observe that what is lacking is a clear definition of what is considered, "the factors that intrude upon, or are a part of, these transactions over time, and their contribution" (p. 265). How do writers make use of what they read in fulfilling their goals as authors? And, what do writers attend to in reading their own texts?

In this paper, I propose a set of strategies for connecting reading and writing, placing this discussion in the context of other pedagogical approaches designed to exploit the relationship between reading and writing. Though educators accept the premise that reading and writing are complementary processes of composing meaning, discussions of the ways in which a sense of authorship can inform reading are underspecified. How does one process affect the other? In order to make more precise an understanding of how authorship affects reading, I explore some ways students employ the strategies involved in what I have termed "mining" a text—reconstructing context, inferring or imposing structure, and seeing choices in language. Two questions are critical to the kind of classroom inquiry described in this paper: what happens when readers are also writers? and how does reading inform writing? These questions mark an important shift in emphasis from the teaching of reading and writing to the nature of learning—how students use and adapt what we teach.

HOW READING CAN INFORM WRITING: IMITATION AND IMMERSION

Reading has played an important role in the writing classroom because we believe that students can learn about writing through imitating models of well-wrought prose. The expectation is that students will internalize the style, grace, and correctness that make these works exemplary. Though such an approach has been criticized in composition, imitation has a venerable tradition in classical rhetoric (Corbett, 1971; Sullivan, 1989). And, as Bazerman (1980) points out, "teachers of other academic disciplines still find the model attractive, because writing in the content disciplines requires mastery of disciplinary literature" (p. 657). Teachers have faith that when students write about disciplinary subjects, using a field's preferred genres and styles, they will absorb knowledge about

discourse features or the acceptable "commonplaces" (Bartholomae, 1985) in that field. For some students, perhaps in many instances, imitation can foster the development of writing ability, so that they succeed at certain kinds of tasks and apply their knowledge of discourse conventions in different situations.

Yet, the assumption that students learn certain discourse conventions or can apply their knowledge is speculative. One might wonder, for example, if students can articulate or apply the discourse knowledge they tacitly learn through imitation to their writing in different situations and across a number of varying tasks. Will imitation serve our students when they must transform their knowledge in order to contribute something new to an ongoing conversation in a given field? At a more basic level, in imitating models, what would we expect students to attend to as they read in light of their purposes as writers?

As an alternative to imitation, some teachers foster the development of writing ability by immersing students in what Atwell (1985, 1987) calls a "literate environment." Here writers share their writing and evolving interpretations of literary works, meet with one another in groups or conferences, and develop portfolios of their writing over time. The assumption is that we can immerse them in a social process that underscores the influence of a classroom or disciplinary community on constructing texts and forming judgments in reading and writing (Bruffee, 1985, 1986). In this environment, students begin to see the social purposes of writing: contributing to the growth and development of a community.

While the principles underlying imitation and immersion are apparently quite different, some questions remain the same. What do our students learn about writing through reading one another's texts or through reading prose models? Again, for some students, these approaches, either alone or in concert with one another, may enable students to learn "the forms and genres, and ways of speaking that writing in [a] discipline demands" (Jolliffe & Brier, 1988, p. 55). But if writing is a social process that underscores the importance of situation, to what extent do these approaches teach students—individual writers—to negotiate the complex demands that a rhetorical situation places upon them? In large part, the answer lies in the goals that inform a given method of teaching, goals that are often underspecified in discussions about how students can learn about writing through reading. Abstract instruction will not suffice if we want students to make reasonable choices and decisions in widely different rhetorical situations. After all, students may be required to write a lab report in biology, an argument about the European Recovery Program after WWII for a history seminar, or a piece of literary journalism in their English class. Each requires a different set of discourse strategies and conventions that must meet the expectations of a knowledgeable reader.

Linked to this discussion of how reading might affect writing is a body of empirical and theoretical work that has examined the notion of "reading like a writer," a construct that Frank Smith uses to explain how children learn about writing through reading. However, reading like a writer has in large part been an ill-defined construct that different people have named and discussed (e.g., Murray, 1986; Tierney, 1985; Young & Robinson, 1987). Some speak of the importance of reading like a writer as a way to enable students to "get inside language," (e.g., Newkirk, 1982), to develop a sense of options in reading and writing (Graves & Hansen, 1984; Hansen, 1983; cf. Kucer, 1987), and to achieve a sense of power (e.g., Warnock, 1986). Others focus on the role of teaching in helping students to read in the role of writers, emphasizing the importance of analyzing literary texts and imitating the style and diction of published writers (e.g., Church & Bereiter, 1984). While I share the goal of helping students gain a sense of authorship and an awareness of the options they have in reading and writing, the metaphors employed to describe the process of reading in the role of writers are just that: metaphors of empowerment and authorship.

Theories about teaching and learning are underspecified, so that neither teachers nor students can translate these metaphors into a set of actions.

For a moment, let me tease out further some of the assumptions theorists, teachers, and researchers make about the ways in which reading can inform writing, assumptions that call attention to the ways readers and writers co-construct meaning. Written discourse is structured by the respective purposes and expectations of readers and writers. Together, readers and writers influence what is produced or understood in a text (Tierney & LaZansky, 1980). That reading and writing are collaborative acts of making meaning is *dramatically* played out in writing workshops. Here teachers claim that students can learn certain features of discourse and adapt their writing to the needs of an audience in a literate environment, where students write and share their writing (e.g., Atwell, 1985, 1987; Murray, 1986). Such an assumption is based, in part, on Vygotsky's theoretical framework for learning, one that underscores the social origins of individual activity and appears to imply that writers will internalize knowledge about texts through social interaction (Bruffee, 1984; cf. Wertsch & Stone, 1985). Thus, social context appears to influence the way writers view texts. Texts are made, evolving through conscious choices and decisions. The argument also seems to follow that, as teachers, we do not intervene in the process of learning, but take on the role of facilitators. As a consequence, there is little sense that teachers help students *reflect* on the strategies that different writers use or consider the appropriateness of the choices and decisions they make in different situations. Though interaction between readers and writers may heighten writers' awareness of their choices, research on collaboration suggests that "awareness itself may not insure that students will reflect critically on those choices" (Higgins, Flower, & Petraglia, 1991).

Others conclude that reading can inform writing through more direct instruction that consists of analyzing stylistic features of written products, an approach that implicitly assumes that writers can infer process from a written text and that form can precede content (Church & Bereiter, 1984; cf. Bereiter & Scardamalia, 1984). Yet, emphasis on the mindful study of texts neglects the active role readers play in constructing meaning, in particular the knowledge and skill that affect the ways in which readers organize, select, and connect information in both comprehension and composing. Still, the assumption is that a directed study of prose models can help students develop and improve their writing skills. "Consciously or unconsciously students begin to collect their own models of good writing" (Eschholz, 1980, p. 29; see Smagorinsky, in press, for a more comprehensive examination of a models approach to teaching writing.) Such an assumption, however, does not account for the ways in which individual learners use what they know to construct meaning. Interestingly, Hillocks' (1986a) recent meta-analysis of research on the use of prose models found that there were no significant gains between experimental and control groups in studies that sought to demonstrate the efficacy of using models to teach different features of discourse, such as descriptive detail or structure (pp. 153-156). In the studies he describes, the process of writing—planning, inventing, shaping, organizing—and the social purposes for writing are simply not an issue in teaching discourse knowledge. Instead, as Hillocks points out, the primary pedagogical assumption was that "a developing writer learns from seeing what others have done and from imitating those forms and techniques" (p. 154).

Perhaps a more productive line of research has begun to examine the ways in which a knowledge of content and strategies contribute to the construction of meaning in reading and writing, suggesting that reading can inform writing when "writers ... understand the relationship between form and content. ... A model seems to be most beneficial when learners have appropriate content knowledge and learn how to transform it; the model can illustrate how to relate the bits of knowledge in a coherent structure" (Smagorinsky, in press; cf. Hillocks, 1986b). In the end, models may be useful, but the issue is when to

introduce models to students in an instructional sequence and how to use these models to describe the ways in which reading can inform writing. In fact, one could argue that an "enlightened application" of imitation that synthesizes both the theory and practice of composing can provide a useful way to bridge apparent differences between competing pedagogical approaches (Sullivan, 1989, pp. 15, 16).

A CONSTRUCTIVIST APPROACH TO READING AND WRITING

As a way to flesh out some understanding of how writers read when they have a sense of authorship, I want to introduce the metaphor of mining. Such a metaphor can provide a useful and descriptive means for understanding how writers read purposefully and intently in order to develop a store of discourse knowledge they can use to achieve their goals in composing. More specifically, this kind of pragmatic reading is fueled by *three key strategies* that can inform reading: reconstructing context, inferring or imposing structure, and seeing choices in language.[1] Mining suggests a strategic process that consists of mapping out the territory by examining the situation or *context*. It also entails imposing or inferring some sort of *structure* based on informed guesses about where the object or objects of inquiry might lie, as well as exploring possible options and choices by representing one's plan in different ways in *language*. Language can provide a lens through which we can understand something in a particular way. And subtle changes in language alter the ways we locate meaning. Such a process requires one to plan, selectively evaluating and organizing information in order to get a sense of the topography, and to reflect upon one's choices and decisions about how to use accumulated knowledge to best effect. For this excavation, the miner uses certain "tools" appropriate to the situation to help uncover what is most desired. For the reader who is also a writer, this means using strategies to reconstruct context, infer or impose structure, and see choices in language. In these ways, a reader can begin to make informed guesses about how to use the ideas or discourse features of a given text in light of his or her goals as a writer. Such an "excavation" can be a selfish endeavor for it serves the individual in his or her search for riches. But in excavating knowledge a developing author uses the object of inquiry to make a contribution to the community that shapes and constrains what is said and how it is communicated.

Constructivist theories of reading, which call attention to comprehension as an active process of composing meaning, can provide a useful framework for understanding how a sense of authorship can motivate and influence reading—that is, how people mine texts in reading to write. Readers use what they know together with textual cues to organize textual meaning, select information based on some relevance principle, and make connective inferences between the information they select from sources and the content they generate from prior knowledge and experience (Spivey, 1990). Writers can embellish what they read with examples and counterexamples (Stein, 1990), thinking critically about what they read in light of their goals as writers, and structure information in order to build a coherent representation of textual meaning that consists of a certain "configuration of

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[1]One could argue that theorists and researchers have already provided an existing framework that attempts to account for the kinds of strategies writers use to comprehend and to compose texts. Yet, in describing the constructive processes that shape meaning, researchers have not shown how knowledge of context, structure, and language work together as a family of strategies (cf. Schoenfeld, 1979) that influence both composing and comprehension. With the exception of Ackerman's (1991) recent study, when researchers have studied one or more of these strategies, their observations have focused primarily on comprehension, not on strategies that readers employ in light of their goals as writers. Ackerman examined the role of prior knowledge in both comprehension and composing. Relevant to a discussion of how readers mine texts in light of their goals as writers is his finding that rhetorical awareness—of structure and context—is influenced by "a writer's topic knowledge" (cf. Asch, 1952; Flower, 1988; Haas & Flower, 1988).

concepts and relations" (Beaugrande & Dressler, 1981, p. 4). This configuration of meaning facilitates understanding and enables writers to access relevant strategies so that they can use what they know effectively (Spiro et al., 1987). Such a framework can also help us understand the ways in which writers "think their way into rhetorical situations and through rhetorical problems," negotiating their own goals in light of a given social or rhetorical situation, and transforming content in constructing meaning (Flower, Higgins, & Petraglia, in preparation). Finally, in keeping with my metaphor of mining, Bazerman's (1985) research into the sociology of science also points to the constructive nature of reading and writing, a process shaped by an individual's schema or personal map of the field. This map consists of consensual knowledge about the field, its methods and current practices, the problems on which the field is working, and the ways problems are worked out. Meaning, he suggests, seems to come from being able to integrate new information into what one already knows. Readers selectively evaluate information and connect textual content based on their own goals.

It follows, at least pedagogically, that we can help students develop a set of tools in order to locate the context or situation that shapes the production of a text, the rhetorical structure that influences the way readers interpret a text, and determine the kind of language that is appropriate to a given rhetorical situation. When students mine texts in light of their goals as writers, they can begin to attend to specific features of the texts they read, selecting, organizing, and connecting ideas for the purpose of writing (cf. Ackerman, 1991; Spivey, 1987). Note, for example, a student who, in a class assignment, "mines" John McPhee's "The Woods from Hog Wallow," attending to the way he uses a scenario to set up an argument. At the same time, as she thinks aloud, revealing some of her thoughts as she reads, she recognizes the possibilities of using this strategy in writing her own essay.[2]

> *In the beginning of the essay he starts out with a scenario. I think that would be good if I gave a scenario about someone having to deal with writer's block. ... Then people can get a better idea of what direction I'm going to take.*

In reading McPhee's text for knowledge about discourse strategies, she selectively evaluates what he writes and how he has cast his ideas, finding ways to use another writer's approach to achieve her own goals. The claim here is that in teaching students to mine texts we can help them read actively as contributing authors, reflecting on the ways writers use language, structure their ideas, and respond to what other writers have written in academic, literary, or personal arenas. As authors, they can potentially use this knowledge about how writers construct texts in their own writing.

In the end, imitation and immersion may enable some students to acquire an ability to learn about writing through reading, but we can also teach them to read actively as authors. We can give them a set of tools that enable them to locate issues, determine the forms and conventions of a discipline, and establish ways to enter a conversation. For example, we can show students through analyzing discourse features how writers in a discipline invoke context by establishing the importance of an issue, use citations to demonstrate their knowledge of the field, and create a research or problem space that

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[2]Students received training in thinking aloud in order to minimize the possibility of distorting cognitive processes (cf. Ericsson & Simon, 1984). Students listened to a tape recording of someone solving a math problem. Discussion stressed the point that in thinking aloud the problem solver verbalized his or thoughts about the problem and did not comment upon the process of thinking itself. Students were then given an opportunity to think aloud as they solved a problem and in a second practice session students thought aloud as they tried to get the gist of a text they were asked to read.

provides an opportunity for entering a scholarly conversation (cf. Swales, 1984). An analysis of structure can also underscore the contextual nature of writing, since structure can be linked to the ways of knowing in a given discipline. The report form in the sciences, for example, reflects the kind of work that scientists carry out: establishing the importance of a certain area of study, defining a problem, situating their work in a network of prior research, determining the methods of conducting a study, analyzing data, and so on. The form embodies the scientific method and principles of knowing that characterize the way scientists see the world (cf. Bazerman, 1985; Myers, 1990). Of course, science does not operate as neatly as the scientific method suggests. Scientific knowledge results from a consensus-building enterprise that often consists of resistance and an ongoing process of negotiation (cf. Kuhn, 1970; Myers, 1990). Moreover, we can show students how writers like E. B. White, Joan Didion, or Tracy Kidder achieve more personal goals in writing, at the same time pursuing issues about impending nuclear war in the late 50's, the political climate in El Salvador, or the role of advanced technology in contemporary American society.

Further, the notion of mining texts embodies a valued process that can enable students to fulfill the cycle of literacy. Such a cycle enables students to be more than "deferentially literate" (Newkirk, 1982), that is, politely observing what other authors have accomplished in their writing. Instead, students are given the promise of contributing as authors. Students who are readers are also writers. Moreover, in learning to mine texts, students recognize that the choices and decisions they make as writers vary according to the situation and social context in which they write. This is an important distinguishing feature between the notion of mining texts and constructs such as "reading like a writer," which treats writing as invariable across different social situations.

BEYOND CRITICAL READING

The kind of reading I am proposing could be construed simply as another way of reading critically. After all, mining texts does consist of reading critically—determining the purpose and goals for writing, focusing on language—but with three fundamental differences. First, in mining texts, students conduct the sort of inquiry that informs them about texts they have read and the sorts of texts they can produce over time. In an advanced writing course that I taught, students kept reading logs, which included information about how authors in different fields invoke context, structure meaning, and situate themselves linguistically. This kind of inquiry or analysis is guided by a sense of authorship—reading with the purpose of contributing to a social network of ideas, a network that is established *vis-a-vis* classroom discussion and that exists within a given scholarly community. As they read texts about literacy, for example, they do so with the promise that they can enter the conversation by demonstrating their knowledge of issues, using what they know to add a novel or neglected perspective. They seek information that can help them construct or reconstruct a context, fitting claims into an accumulated body of knowledge, and making choices and decisions about language and structure appropriate to a given situation. And, students adapt and transform what they read to meet their discourse goals. The relevance principle that guides a writer's attention in reading a text is in large part shaped by the mental map a writer constructs and the text he or she is in the process of writing. That is, a writer's selective attention is influenced by his or her goals as a writer. Such a reading can lead students to form judgments about a text and, importantly, to make choices and decisions about their own writing. In contrast, critical reading often consists of a close, detailed decomposition of a text, a kind of reading that continues to have much institutional support (see Murray, 1991, for a review of textbooks that illustrate this approach). In this sense, critical reading may be more diffused than when students read with a sense of authorship. Moreover, the relevance principle guiding one's selective attention is defined by his or her goals as a reader, often constrained by a "detached" and

"uninvolved" search for meaning in a text. As Olson and Ashton-Jones (1991) observe,

> We teach students to treat discourse as puzzles to be solved through detached calculation, not as human utterances that provide a basis for interaction between reader and writer who, together, create meaning. (p. 197)

One could argue that such an approach to critical reading places students in a passive role, encouraging them to assume the role of spectators who view meaning as something external to themselves, rather than in a role of active participants who construct meaning in light of their rhetorical intentions (cf. Britton, 1982).

Second, critical reading often focuses on single texts in isolation of other texts. This practice can obviate both the complexity of the process involved in writing and can lead to an "inevitable ahistoricism" of textual meaning (Murray, 1991, p. 204). In contrast, mining texts is an ongoing process of reading, analyzing, and authoring that recognizes the social nature of discourse. Each piece of writing that a student reads or writes is a contribution to an ongoing written conversation. To reconstruct the context of a text requires an understanding of how an author frames a response appropriate to a given situation and an author's own purpose. Mining also fosters the kind of comparative analysis that can enable students to see, as Bazerman (1980) has observed, how "previous comments provide subjects at issue, factual content, ideas to work with, and models of discourse appropriate to the subject" (p. 658). In reading in the role of writers, students make judgments about the most appropriate way to make their own contribution in writing.

Finally, and perhaps most significantly, the knowledge that students gain in mining texts is not merely knowledge about discourse conventions, but critical knowledge about the appropriate uses of certain strategies in different situations. By reading in this pragmatic sort of way, writers compose and comprehend texts with a set of strategies or tools, aware of the purposes these strategies might serve, and the circumstances under which a set of strategies might be used. While mining texts may entail some elements of imitation, such a construct calls attention to the classical notion of mimesis—that skills are acquired through imitation, theory, and practice (Corbett, 1971). Writers may internalize discourse knowledge through emulating model texts and through the practice of summarizing and paraphrasing these texts. However, theory is an integral part of learning, for it guides inquiry, specifying the nature of what interests us about the production of discourse in a given field—the nature of rhetorical invention, strategies of form, epistemological assumptions, and style (Hansen, 1988). In addition, a theoretical perspective on how texts are made provides a set of evaluative tools for adapting certain discourse conventions in light of one's own purposes for writing. In essence, theory emphasizes critical, conscious reflection that is often missing in critical reading tasks. In these ways, mining texts, embodying critical awareness, reflection, and purpose, goes beyond injunctions that students need to learn the commonplaces of a discipline (Bartholomae, 1985) or that we need to "immerse writing students in academic knowledge/discourse communities ... so they can write from within these communities" (Reither, 1985, p. 624). In attending to features of both text and context, students can develop theoretical perspectives on how language works in different social situations.

Many critical reading tasks provide students with models of close analysis, but not necessarily the kind of knowledge that would enable them to apply their critical reading skills to other tasks. In fact, Corbett (1971) has observed that "teachers today who discuss only the ideas in a prose text and neglect to point out the strategies of form," provide an incomplete picture of composing that may undercut our goals as teachers of writing (p. 246). Instead, writers need to reflect upon their own purposes as writers in the context of

what others have said, developing theories about the appropriate use of discourse strategies.

Perhaps the best way to illustrate the contrast between mining texts and a critical reading of a text is through two examples. In providing these two examples—really just thumb-nail sketches—I wish to demonstrate two different approaches to reading a text, not to suggest that one kind of reading is better than another. Moreover, neither example is necessarily "typical" of one kind of reading or another. The key point is that each type of reading reflects a different sense of purpose. In the first, a student thinks aloud revealing some of her thoughts as she reads "critically" a passage from John McPhee's book *The Pine Barrens* (1969):

> *All throughout the essay McPhee makes a point of showing how this area, the Pine Barrens, are incongruous with the rest of the country. Along with having unpolluted water, he makes a point of saying how the Pine Barrens occur in the middle of New Jersey, which a lot of people think is very industrial, very busy and there's lots of transportation and a lot of activity ... He directly contrasts the Pine Barrens with the rest of New Jersey ... And he kind of marvels at how the Pine Barrens are still undamaged.*

Here the reader takes on the role of a "spectator," observing with some deference the way McPhee uses a point of contrast to urge the reader into agreeing that the Pine Barrens should be saved from development. The primary goal is to understand how McPhee orchestrates his argument, a goal the reader achieves by staying close to the text, not by consulting her own experiences, nor by reflecting on her own goals as a writer. In the second example, the reader engages the text in a more active way, taking on a "participant's" role—she mines the text:

> *If he presented his argument more up front he would have captured the reader's interest faster. The whole idea of it in telling a story, giving the argument and then telling more of the story does get the point across, if you're interested in the Pine Barrens ... In my own paper I would definitely use support, like he [McPhee] does—Joseph Wharton, the underground water, and how it can be used in the future. But I would also expand on that more than he did.*

Most telling in this example is that in taking an authorial stance the writer challenges the approach that McPhee has taken in developing his argument, doing so in light of her own goals as a writer. She writes the text that has yet to be written, using her experience as a writer to select what is most relevant or important, balancing a text-based strategy with a purpose-driven strategy. Thus, she focuses on McPhee's attempts to support his argument in the text; but she also imagines the use of support in a much different context—her own writing shaped by a given set of goals—though this context remains undefined here.

In what follows, I provide further illustrations of students thinking aloud as they read a text and used their knowledge of discourse strategies in writing their own texts as part of a class assignment.[3] They attended to both text and context as they read to

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[3]These students were enrolled in a course I taught, one that introduced them to the writing of literary journalists, such as E. B. White, John McPhee, Joan Didion, and Tracy Kidder, and to the forms and conventions of academic writing in different disciplines. Students practiced using the three key strategies I introduced to them—defining, recreating, or inferring the rhetorical situation of a text; creating structure; and seeing choices in language. In turn, they used these strategies in reading texts from different fields and in a variety of genres.

understand a writer's argument, translating features of both text and context into strategies for producing essays of their own. These illustrations provide some insight into what students attend to when they read as writers. At the same time, these examples are purely descriptive accounts of students mining texts, providing a basis for further work in this area.

EXPLORING HOW A SENSE OF AUTHORSHIP CAN INFORM READING

One way to understand how a sense of authorship can inform reading as students selectively evaluate texts and integrate another's work into their own is to look closely at what writers do as they read a text in light of their purpose and goals as writers. Think-aloud protocols offer one means for gaining insight into ways in which writers mine texts as they read and use the knowledge they derive about context, structure, and language in producing their own texts. As Flower (1988) suggests, think-aloud protocols of writers "offer an extended concurrent record of the shifting content and focus of thought as writers concentrate on the task at hand" (p. 533). Examples from the protocols I collected from six students illustrate how students used the three key strategies I have discussed in reading John McPhee's "The Woods from Hog Wallow," the first chapter of his book, *The Pine Barrens*. As part of a class assignment, students were given the essay and told that they would be asked to write a paper on some issue they were interested in, one that mattered to them. In addition, they were told that their paper did not need to focus on the issue that McPhee wrote about, nor should they see his text as an exemplar that they could or should imitate. "The Woods from Hog Wallow" was simply an example of how one might write an argumentative essay. Further, they were reminded of the range of journal articles and essays they had read during the semester. They could draw upon their reading of other works in producing their own texts. After they read McPhee's essay and felt they understood his argument, they were asked to consider what he had written and the techniques he used in light of his purpose and goals, mining the text for whatever they might use in writing their essays. When they finished writing their own essays, students provided retrospective accounts that detail the kinds of choices they made in writing their own essays.[4]

To analyze the differences in the ways students used the source text—McPhee's essay—I coded protocol statements using a scheme that distinguished between representing a writer's rhetorical plan (i.e., McPhee's), including context and structure, and making a writing plan (i.e., a student's plan for writing). This second category reflects a shift in attention from the students' perceptions of the rhetorical plan in the source text to developing their own plans for writing. In each case, students "mapped out the territory" of the text in keeping with their goals as writers. They selectively evaluated information in the text or from prior experiences of how discourse works, organized textual meaning in order to get a sense of the "topography," and reflected upon different options as they composed a reading in their role as authors.

Mapping Out the Territory in Reading to Write

When students like Janet (see below) represented or mapped out the writer's rhetorical plan, they made inferences about context, speculating about why a writer chose the subject he did and how he might have gone about collecting information. The emphasis

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[4]Such an analysis has been looked upon with some suspicion (cf. Sternglass & Pugh, 1986). Students can easily omit certain kinds of information and they can construct interpretations of their decision-making process that do not necessarily reflect what actually occurred as they produced text. Ericsson and Simon (1984), however, provide evidence that retrospective accounts are valid, reliable sources of information.

here is less on the actual text and more on the rhetorical situation and method of inquiry. Students like Andy (see below) focused primarily on the text in representing McPhee's rhetorical plan. They searched for explicit references that showed McPhee's attempts to set up a context for discussing a given issue: presenting background information or providing a rationale for writing.

> (Janet) *... he's going in, I think, he got this idea from some outside source and he was interested in the water supply in this area or interested in possibly just the area itself. So he went in, he had this urge or desire as a writer to go in and find out more about it and write about it. So he goes into this area, he does some studies on the area. He meets these people he's going to spend time with.*
>
> (Andy) *It's very structured because he starts out in the beginning and he's setting it up. ... He's describing what the place [the Pine Barrens] is like. Logically, now he's going to defend all this beauty that he's describing here. It sets up the context, a reason for arguing.*

One could argue that Janet has lost sight of the text in her concern for where the writer got his idea for writing and the methods he used to initiate the process of inquiry. In contrast, Andy appears to be a "good" reader who has also mined the text, imposing a structure that helps him organize his ideas about what the writer tries to accomplish at the outset of his text. Yet one could argue that both Janet and Andy use strategies that teach us about how to read in the role of writers. Neither approach to reading is better than the other. Indeed, students use textual cues in order to build a coherent representation of meaning. At the same time, they make inferences about situation and method, considering the importance of situation and method in setting out to construct their own texts. Individual differences in mining texts suggest that there are options that students can weigh. A text-based strategy, like Andy's, can be quite powerful, reinforcing comprehension, and can complement the kind of theorizing that someone like Janet engages in as she reconstructs the process that shaped McPhee's final text.

Part of mapping out the territory also included students' attempts to infer or impose some kind of structure or pattern on the source text. Such a move suggests the fluid nature of structure. Structure may be perceived as a kind of textual space (Nystrand, 1986) created by both readers and writers, not simply a "characteristic of a text that exists apart from the people involved in producing and comprehending them" (Schallert, 1987, p. 73). At times, students considered the writer's goals in using a particular rhetorical device, a given organizational pattern, or mode of argument. For instance, both Janet and Brian engage in a kind of critical reading, focusing on a specific feature of a text—structure. Yet, in representing purpose, Brian illustrates an important distinguishing characteristic of mining that sets such a strategy apart from a critical reading of a text. Brian's selective attention is focused on what McPhee tried to accomplish in his writing, not solely on what McPhee said or how McPhee structured his ideas.

> (Janet) *Going through this essay seems to have three major parts. The first part would be setting up, giving background information as to what the Pine Barrens are. The second part would be showing what life in the Pine Barrens is through Bill and Fred's eyes. And then the other part is showing the modernization, the potential that the Pine Barrens have. In addition to showing the water supply that it can supply, points are also brought out about how industry could locate around there, how an air force base could be located near the top of the woods—a jetport. So the essay seems to focus on background, past, present and future.*

(Brian) *In the beginning of the essay he starts out with a scenario and he describes the Pine Barrens ... I got the idea that he was trying to make it seem like a beautiful esthetically pleasing place so that the reader would tend to go on his side ... it makes you kind of think that it's beautiful and you can't ruin it ... he adds the people to the essay to make you get a more personal feeling of what's going on and that's why he puts the characters in ... you get a stronger feeling of how someone can get attached to a place.*

In this instance, Janet imposed a structure on the source text, using a text-based strategy, while Brian emphasized McPhee's use of a rhetorical technique as a means for achieving his purpose in writing. Again, structure is not necessarily an "invariant property of text" (Pichert & Anderson, 1977, p. 309). Readers actively construct meaning. They create structure in light of their goals as readers and the prior knowledge they bring to a text (Anderson, Reynolds, Schallert, & Goetz, 1977) which provides an interpretive framework for comprehending discourse. Moreover, I would stress that the strategies Brian and Janet use complement one another. To learn about writing through reading, students should attend to how a writer structures his ideas and the relationship between certain ordering principles and rhetorical purpose.

Making a Writing Plan

Finally, comments referring to a student's writing plan reflect a shift in attention from McPhee's rhetorical plan in the source text to developing their own arguments; that is, students read in light of their own purpose and goals as writers. The examples that follow also suggest the extent to which a writing plan affects what students selectively evaluate as they read and decide whether or not to integrate another's work into their own texts.

(Lauren) *In the beginning of the essay he starts out with a scenario ... I think that would be good if I gave a scenario about someone having to deal with writer's block. Then people can get a better idea of what direction I'm going to take ... I could start out with a scenario. Then I could make my argument saying that the five cognitive dimensions do cause anxiety, giving examples like McPhee does ...*

(Colleen) *If he presented his argument more up front he would have captured the reader's interest faster. The whole idea of it in telling a story, giving the argument and then telling more of the story does get the point across, if you're interested in the Pine Barrens ... In my own paper, I definitely would use support, like he [McPhee] does—Joseph Wharton, the underground water, and how it can be used in the future. But I would expand on that more than he did. I would also state a thesis telling people that "This is the problem." I would bring out the importance of it [the water in the Pine Barrens] not being polluted, that it is fresh water, and that you can drink it right out of the pump ... I'd bring that out and show the importance of not having it polluted ... I'd expand on that and get away from the story.*

Perhaps the critical difference between how Lauren and Colleen evaluated what they read depended on their own plan for writing. Lauren read the source text knowing that she would be writing an essay on writer's block, so that she mined the text for what she could use in fulfilling her own goals as a writer. McPhee's use of a scenario inspired her to employ the same strategy to help "make her argument." She imitated McPhee and did so purposefully, aware that this rhetorical technique could help her achieve her goals as a

writer. Mining and imitating each contributed to the generation of text. Colleen, however, did not read the source text with a writing plan of her own. Thus, she did not mine the text for what she could use, but imposed her own criteria for writing an argument, assuming authority over what she read as a writer. In the end, both Lauren and Colleen demonstrate purposeful, though different, goal-directed strategies in reading from the perspective of one's own discourse goals. These strategies reflect an important meta-awareness about writing and what could be achieved through reading and writing.

Critically Assessing One's Choices as a Writer

After students wrote their own essays, they re-read their texts, thinking aloud as they considered the choices they made and the goals they set as writers.[5] They attended to the ways in which they set up a context for writing and structured their ideas, reflecting on how they mapped out the territory for a reader. Some students also considered the decisions they made about how to cast their ideas in language. At times, they reconstructed the choices they made in developing a rhetorical plan and the decisions they made about why they included certain kinds of information.

In the example that follows, context refers to a writer's attempts to provide a rationale for writing an argument or to introduce background information. Here Lauren considers both the content she included and why she made the choices she did in writing an introduction to her paper on writer's block.

> (Lauren) *What I tried to prove was that there are five cognitive dimensions that lead to writer's block. And they lead to writer's block because they first lead to anxiety. And anxiety leads to writer's block. And in the beginning of my paper what I did was I just introduced what I was going to talk about ... I didn't explain them, I just listed what they were. I just wanted to introduce what I wanted to do. Then went on in my paper and I was still introducing certain other things like that. I used the writing model developed by Flower and Hayes and I did this just so the reader would have an idea of what I was talking about. So I didn't really start my argument on the first page. I just spoke about what I was going to be arguing about.*

When students attended to structure, they often described the organizational pattern of the essay; at times, students considered the rhetorical structure, certain kinds of evidence, or specific images in light of their goals as writers. Students began with a text-based strategy that focused their attention on what they said, but moved away from the text, demonstrating an awareness of why they approached the issues in the ways that they did:

> (Brian) *My essay's not structured to where I develop different points or to where I have to be very persuasive ... I don't think you'll find anybody who's a drinking and driving advocate ... It's more along the lines of a narrative, a story about what happens to a group of people.*

> (Lauren) *I mentioned that studies were done to prove that apprehension leads to writer's block ... I did that so the audience can see. The reader can say that my argument was based on fact and not just on my beliefs and ideas ... I was saying that this was proved in an experiment. I'm not just*

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[5]Again, the information collected here was based on retrospective accounts given immediately after the students completed the writing task. Such accounts do not capture a writer's moment-to-moment attention as a think-aloud protocol might. The primary purpose for asking students to reflect upon the choices they made as writers was to gain some understanding of how a sense of authorship can inform reading.

throwing all of this information together. So my argument would be more solid.

Some students also focused on choices about language, why certain words or phrases might be appropriate or not; interestingly, students referred to language only in reading their own work, not the source text.

(Brian) *He's just sitting there. He's frozen completely but his mind is going and he's thinking about this thing. And I have him say, 'He thought surprisingly clearly to himself.' 'Surprisingly clearly,' describing his thought because I wanted to make it very clear that what Brad was thinking is basically what I think.*

(Andy) I don't want to narrow this down to one particular situation. I sort of want to allow everyone to compare themselves to this. So you know I don't want to nail down one time and one place. But it's helpful to give little images here and there. That's basically what I'm trying to do with phrases like 'nervously fingers the bridge of his glasses' and 'smiles blindly with dry lips into the glare of the stage lights' ... while it's not really specific it does begin to give you a picture of what's going on, what he's feeling.

Finally, I noted episodes in the think-aloud protocols when students reconstructed the choices and decisions they made about content—what to include or not to include in the essay in light of their goals. These comments reflected an important meta-awareness about writing, suggesting a sense of control on the part of the writer who knew both what he or she wanted to say and why certain details and ideas may or may not have been appropriate.

(Brian) *I didn't go into detail about the car that was wrapped around a tree, I didn't go into things like that or the shock of the drivers or anything like that. I just went into, I said, you know, this is what happens and two people were killed and that's it. That's all I need to say and the rest can be left up to your imagination and because things like that aren't pleasant to imagine. They shouldn't be for the essay. I think I can spare people the gore, I can make my point completely without it.*

Implications for Research and Teaching

Taken as a whole, the examples of students reading to write support some earlier speculations about the conditions under which students will and will not read like writers. The think-aloud protocols suggest that when students read with a sense of authorship, knowing that they will be expected to produce texts of their own, they use the source text as a heuristic for structuring and developing their own ideas. This is evident when one student observes that McPhee uses a scenario at the outset of his essay and that such a technique would be effective in her own work. Similarly, another student uses McPhee's approach to writing an argument as a point of departure for writing her own essay, making choices about how she would develop an effective argument that would sustain a reader's interest. Of course, the extent to which students read in the role of writers depends on their having an occasion to write and having a fairly well-developed plan for writing when they read a text. Interestingly, two students, troubled by the way John McPhee structured his essay, approached reading as a means for solving a problem. In turn, they both rewrote the text, applying their own criteria of how to structure an argument. Yet when students have difficulty grasping the meaning of a text, as was the case with two other students, they will attend to content more than viewing the source text in light of their goals as

writers. At the same time, source content can help create a writer's goals. Goals may emerge, change, or be discovered while reading.

The work presented here represents only a first step in understanding more precisely how writing can inform reading. We need to know more about how writers learn from and construct texts when they deal with information from single (cf. Tierney, 1985) or multiple (Ackerman, 1991; Greene, 1991; Spivey, 1990) texts in different academic fields. And, more controlled studies may enable us to make more rigorous claims about the relationship between reading and writing. Can students transfer their knowledge about discourse in reading to the process of writing? The illustrations above are suggestive, but they do not provide conclusive evidence that students could apply the tools they learned for mining texts to composing.

Finally, if our goals as teachers consist of helping students take control over their own learning by thinking more critically about how reading can inform writing, then we can help students to develop a knowledge of what mining texts means, when to employ these strategies, and how to manage these strategies in order to direct their own reading-writing process. At the same time, I offer one caveat: teaching students to mine texts—to attend to certain text features in reading and writing—should be part of an on-going process of reading situations and of representing the demands of a given context for writing. In this way, this kind of pragmatic reading emerges as a means of weighing options and choices in light of what is required in a given situation. As one student reflected:

> *The usefulness of [mining a text] depends on your own purpose for reading. If you're reading in order to gain ideas for your own writing then reading like a writer is useful. Otherwise, it is more of a burden. For example, if you were reading a physics textbook in order to learn how to do your physics homework assignment, then reading like a writer ... would just get in the way. If you were planning on writing your own textbook, then perhaps you would want to read other texts like a writer in order to get a feel for what your task will entail and to get an idea of how you will write your book. Examining the choices the authors of other books made could, indeed, strengthen your own text.*

What I want to emphasize in my student's observation is the implicit distinction that he makes between recitation and contribution. If students are to read in the role of writers, we need to give them opportunities to write, to enter conversations.

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